



Ebola Waste Management Guidance

In response to a possible Ebola case in Colorado, the Solid Waste and Materials Management Program provides the following guidance. We will continue to update this guidance for consistency with US Centers for Disease Control and Prevention recommendations. For additional information, please contact:

Colorado Department of Public Health and Environment:
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Denver, CO
(303) 691-4059

Waste Generators

Colorado has previously developed the following compliance bulletins to assist medical waste generators in dealing with medical waste, as well as medical waste identification, both of which will apply to Ebola-associated medical waste:

- https://www.colorado.gov/pacific/sites/default/files/HM_mw-generator-guide.pdf
- https://www.colorado.gov/pacific/sites/default/files/HM_mw-identification-guide.pdf

Waste Storage

At the source of waste generation, Ebola-associated medical waste can be stored for up to thirty (30) calendar days without refrigeration if the waste is packaged consistent with Department of Transportation (US DOT) Hazardous Materials Regulations (HMR) for Category A infectious substances (49 CFR Part 173.196). It can be stored onsite for up to ninety (90) calendar days if the waste is packaged consistent with US DOT requirements for Category A infectious substances and is kept refrigerated (less than 45 degrees Fahrenheit) or frozen. Sharps containers containing Ebola-associated wastes can be stored up to ninety (90) calendar days as long as the containers are in good condition, closed following the manufacturer's instructions and secured to prevent unauthorized access. We recommend that Ebola-associated wastes be packaged and stored separately from other infectious wastes, preferably in an area with restricted access.

All infectious waste generators must have a medical waste management plan onsite that outlines procedures to be followed in the handling and storing of medical waste.

Waste Packaging

US DOT Category A infectious substances pose a high risk to public safety and health. In order to prepare this waste for transportation, it must be packaged in accordance with the Hazardous Materials Regulations (49 CFR, Parts 171-180). Part 173.196 specifically covers Category A infectious substances. These packaging requirements include:

- The waste must be packaged in a double- or triple-bag system, depending on the type of outer packaging used;

- The first two bags should be made of plastic film, be 46 gallons or smaller and must be leak-proof;
- The outer package must be rigid and must be UN Standard or DOT-approved non-bulk packaging;
- If this outer package is fiberboard, it must be triple-walled and lined with a minimum six (6) millimeter polyethylene plastic; and
- Each double- or triple-wrapped bag may not weigh more than 22 pounds, but the outer packaging may contain more than one wrapped bag.

For more details please see the DOT's *Procedural Guidance on the Proper Packaging of Ebola Suspected Waste*, which is available at:

http://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/suspected_ebola_patient_packaging_guidance_final.pdf.

We do not recommend using reusable containers if at all possible. If used, they must be disinfected prior to reuse following stringent disinfection protocols. We recommend that bleach or other EPA-registered hospital disinfectants with a label claim for non-enveloped virus be used to disinfect hard, non-porous surfaces.

Transportation

Untreated Category A medical waste may be transported only to an approved commercial medical waste storage, treatment or disposal facility in appropriate US DOT-approved packaging and in compliance with all applicable US DOT transportation requirements. If the packaging requirements in the regulations cannot be met, then the transporter must apply for a special permit under 49 CFR Part 107.105. A special permit will be required to transport larger items such as mattresses.

Once this waste has been treated to render it non-infectious, it becomes exempt from the Hazardous Materials Regulations and can be transported in the same manner as other treated infectious wastes.

US DOT guidance on transportation of Ebola-associated waste is available at:

<http://phmsa.dot.gov/hazmat/phmsa-provides-guidance-for-transporting-ebola-contaminated-items>. Additionally, US DOT has made available a set of frequently asked questions and answers: <http://phmsa.dot.gov/hazmat/question-and-answer>.

Treatment

The US Centers for Disease Control and Prevention (CDC) recommends that Ebola-associated waste be inactivated through use of an autoclave or that it be incinerated. There are no commercial medical waste incinerators in Colorado. There currently are two permitted and operating commercial autoclave facilities in the state, however at this time only Medical Systems of Denver, Inc. (MSDI) will accept Ebola associated waste for treatment. Hospital incinerators that are no longer in use can't be used to treat Ebola-associated waste without proper permitting from the Air Pollution Control Division and the Hazardous Materials and Waste Management Division.

As is required for all medical waste treatment, efficacy testing must be done to show that the treatment system is able to reach performance standards through the increased packaging

that is required by the US DOT. The waste should not be removed from its packaging prior to treatment unless it is absolutely necessary to facilitate treatment.

Final Disposal

Once the Ebola-associated waste has been successfully treated via an approved method, it is considered non-infectious and may be disposed of at a permitted landfill facility. The disposal facility must be contacted prior to delivery of this material and informed that it is treated Ebola-associated waste. The landfill has the right to refuse any waste. Therefore, it is important that this waste acceptance be agreed upon in advance.

As an extra precaution, we recommend the waste be disposed of away from the working face of the landfill and be immediately placed under at least 18 inches of daily cover.

Exposure Controls

All persons who may come into contact with untreated Ebola-associated waste should take precautions to prevent exposure. Proper personal protective equipment (PPE) should be worn at all times by everyone who comes in contact with this waste, even when it is packaged. The minimum recommended PPE for healthcare workers according to the CDC can be found here: <http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>.

Any facility handling untreated Ebola-associated waste should have an exposure control plan that outlines procedures to prevent exposure, as well as steps to be taken in the event of exposure.

Environmental Cleanup

In the event an Ebola infected patient experiences symptoms outside of a healthcare environment, there may be the potential for things that person comes in contact with to become contaminated with Ebola. In the event that this happens very careful procedures should be followed to decontaminate the area. The CDC has published an Interim Guidance for the cleanup of residences that should be followed:

<http://www.cdc.gov/vhf/ebola/hcp/residential-decontamination.html>. This Guidance provides procedures, products, and guidance for cleanup contractors to follow. A list of cleanup contractors that will do Ebola related work in Colorado is provided below.

The EPA has also developed a list of approved disinfectants for use against Ebola, which can be found here: <http://www.epa.gov/oppad001/list-l-ebola-virus.html>.

Contacts

Medical Waste Treatment and Transport Services:

Stericycle, Inc.
5355 Colorado Blvd.
Dacono, CO 80514
(303) 371-6509

(Treatment will be done via 3rd party at Veolia's incinerator in Port Arthur, TX)

Medical Systems of Denver, Inc.
7600 Johnson Dr.
Frederick, CO 80504
(303) 772-7971

Cleanup Contractors (this list is not intended to be comprehensive):

Bio-Clean of Colorado
Windsor, CO
(970) 686-5015

Crystal Clean Decontamination
Denver, CO
(303) 884-5489

Colorado Cleanup Services
Denver, CO
(303) 237-4406

Clean Harbors
Commerce City, CO
(303) 289-8031